

What is claimed is:

[Claim 1] 1. An electroluminescent lamp including a phosphor blend comprised of a mixture of an electroluminescent phosphor and an europium-activated alkaline earth silicon nitride phosphor, the electroluminescent phosphor selected from a blue-emitting electroluminescent phosphor, a blue-green-emitting electroluminescent phosphor, or a combination thereof.

[Claim 2] 2. The lamp of claim 1 wherein the europium-activated alkaline earth silicon nitride phosphor is represented by the formula, $M_xSi_yN_z:Eu$, wherein M is selected from Ca, Sr, and Ba and wherein $z=2x/3 + 4y/3$.

[Claim 3] 3. The lamp of claim 1 wherein the europium-activated alkaline earth silicon nitride phosphor is represented by the formula, $M_2Si_5N_8:Eu$ wherein M is selected from Ca, Sr, and Ba.

[Claim 4] 4. The lamp of claim 1 wherein the europium-activated alkaline earth silicon nitride phosphor is represented by the formula, $MSi_7N_{10}:Eu$ wherein M is selected from Ca, Sr, and Ba.

[Claim 5] 5. The lamp of claim 1 wherein the europium-activated alkaline earth silicon nitride phosphor is $Ca_2Si_5N_8:Eu$.

[Claim 6] 6. The lamp of claim 1 wherein the blend contains from about 10% to about 20% by weight of the europium-activated alkaline earth silicon nitride phosphor.

[Claim 7] 7. The lamp of claim 1 wherein the blue-emitting electroluminescent phosphor is $ZnS:Cu$ and the blue-green-emitting electroluminescent phosphor is $ZnS:Cu,Cl$.

[Claim 8] 8. The lamp of claim 1 wherein the blue-emitting electroluminescent phosphor emits at a wavelength from about 400 nm to about 470 nm and the blue-green-emitting electroluminescent phosphor emits at a wavelength from about 470 nm to about 550 nm.

[Claim 9] 9. The lamp of claim 8 wherein the europium-activated alkaline earth silicon nitride phosphor is excited at a wavelength from about 200 nm to about 500 nm and exhibits an emission maximum at a wavelength from about 600 nm to about 680 nm.

[Claim 10] 10. The lamp of claim 1 wherein the lamp exhibits a CRI of at least about 75.

[Claim 11] 11. The lamp of claim 1 wherein the lamp exhibits a CRI of at least about 80.

[Claim 12] 12. The lamp of claim 5 wherein the lamp exhibits a CRI of about 85.

[Claim 13] 13. The lamp of claim 1 wherein the lamp exhibits an x color coordinate from about 0.29 to about 0.39 and a y color coordinate from about 0.35 to about 0.39.

[Claim 14] 14. The lamp of claim 13 wherein the blend contains from about 10% to about 20% by weight of the europium-activated alkaline earth silicon nitride phosphor.

[Claim 15] 15. The lamp of claim 14 wherein the europium-activated alkaline earth silicon nitride phosphor is $\text{Ca}_2\text{Si}_5\text{N}_8:\text{Eu}$.

[Claim 16] 16. The lamp of claim 2 wherein the europium concentration is from 1 to 10 atomic % compared the alkaline earth ion.

[Claim 17] 17. A phosphor blend comprising: a mixture of an electroluminescent phosphor and an europium-activated alkaline earth silicon nitride phosphor, the electroluminescent phosphor selected from a blue-emitting electroluminescent phosphor, a blue-green-emitting electroluminescent phosphor, or a combination thereof.

[Claim 18] 18. The phosphor blend of claim 17 wherein the europium-activated alkaline earth silicon nitride phosphor is represented by the formula, $\text{M}_x\text{Si}_y\text{N}_z:\text{Eu}$, wherein M is selected from Ca, Sr, and Ba and wherein $z=2x/3 + 4y/3$.

[Claim 19] 19. The phosphor blend of claim 17 wherein the europium-activated alkaline earth silicon nitride phosphor is represented by the formula, $\text{M}_2\text{Si}_5\text{N}_8:\text{Eu}$ wherein M is selected from Ca, Sr, and Ba.

[Claim 20] 20. The phosphor blend of claim 17 wherein the europium-activated alkaline earth silicon nitride phosphor is represented by the formula, $\text{MSi}_7\text{N}_{10}:\text{Eu}$ wherein M is selected from Ca, Sr, and Ba.

[Claim 21] 21. The phosphor blend of claim 17 wherein the europium-activated alkaline earth silicon nitride phosphor is $\text{Ca}_2\text{Si}_5\text{N}_8:\text{Eu}$.

[Claim 22] 22. The phosphor blend of claim 17 wherein the blend contains from about 10% to about 20% by weight of the europium-activated alkaline earth silicon nitride phosphor.

[Claim 23] 23. The phosphor blend of claim 18 wherein the blue-emitting electroluminescent phosphor is ZnS:Cu and the blue-green-emitting electroluminescent phosphor is ZnS:Cu,Cl.

[Claim 24] 24. The phosphor blend of claim 17 wherein the blue-emitting electroluminescent phosphor emits at a wavelength from about 400 nm to about 470 nm and the blue-green-emitting electroluminescent phosphor emits at a wavelength from about 470 nm to about 550 nm and the europium-activated alkaline earth silicon nitride phosphor is excited at a wavelength from about 200 nm to about 500 nm and exhibits an emission maximum at a wavelength from about 600 nm to about 680 nm.

[Claim 25] 25. The phosphor blend of claim 18 wherein the europium concentration is from 1 to 10 atomic % compared the alkaline earth ion.

[Claim 26] 26. A phosphor blend comprising: a mixture of an electroluminescent phosphor and a $\text{Ca}_2\text{Si}_5\text{N}_8\text{:Eu}$ phosphor, the electroluminescent phosphor selected from a blue-emitting ZnS:Cu phosphor, a blue-green-emitting ZnS:Cu,Cl phosphor, or a combination thereof.

[Claim 27] 27. The phosphor blend of claim 26 wherein the europium concentration is from 1 to 10 atomic % compared the alkaline earth ion.

[Claim 28] 28. The phosphor blend of claim 26 wherein the blend contains from about 10% to about 20% by weight of the $\text{Ca}_2\text{Si}_5\text{N}_8\text{:Eu}$ phosphor.

